

MIL-B- 87162(USAF)  
 25 February 1982

## MILITARY SPECIFICATION

### BAFFLE MATERIAL, EXPLOSION SUPPRESSION, EXPANDED ALUMINUM MESH, FOR AIRCRAFT FUEL TANKS

This specification is approved for use by the Department of the Air Force, and is available for use by all Departments and Agencies of the Department of Defense.

#### 1. SCOPE

1.1 Scope. This specification covers the requirements for a coarse-pore expanded aluminum mesh baffle material for explosion suppression in aircraft fuel tanks and dry bay areas (cavities).

1.2 Classification. The expanded aluminum mesh shall be of the following grades, types and classes as specified (see 6.2).

- Grade 1 - Untreated
- Grade 2 - Treated (Chromate Conversion Coating)
- Type I - 1.5 Mil foil, nominal 1.6 lb/ft<sup>3</sup> (25.6 kg/m<sup>3</sup>)
- Type II - 2 Mil foil
  - Class A - nominal 1.9 lb/ft<sup>3</sup> (30.4 kg/m<sup>3</sup>)
  - Class B - nominal 2.1 lb/ft<sup>3</sup> (33.6 kg/m<sup>3</sup>)
- Type III - 3 Mil foil
  - Class A - nominal 2.5 lb/ft<sup>3</sup> (40.0 kg/m<sup>3</sup>)
  - Class B - nominal 3.0 lb/ft<sup>3</sup> (48.0 kg/m<sup>3</sup>)

#### 2. APPLICABLE DOCUMENTS

##### 2.1 Government documents.

2.1.1 Specifications and standards. Unless otherwise specified (see 6.2), the following specifications and standards of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation, form a part of this specification to the extent specified herein.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to the Aeronautical Systems Division, ENES, Wright-Patterson Air Force Base, Ohio 45433, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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## SPECIFICATIONS

## FEDERAL

L-P-378 Plastic Sheet and Strip, Thin Gauge,  
Polyolefin  
TT-S-735 Standard Test Fluids, Hydrocarbon  
PPP-B-636 Box, Fiberboard

## MILITARY

MIL-P-116 Preservation, Methods of  
MIL-C-5541 Chemical Conversion Coatings on Aluminum  
and Aluminum Alloys  
MIL-T-5624 Turbine Fuel, Aviation, Grades JP-4 and  
JP-5  
MIL-T-6396 Tanks, Fuel, Oil, Water-Alcohol, Coolant  
Fluid, Aircraft, Non-Self-Sealing,  
Removable Internal  
MIL-S-8802 Sealing Compound, Temperature-Resistant,  
Integral Fuel Tanks and Fuel Cell Cavities,  
High Adhesion  
MIL-I-27686 Inhibitor, Fuel System Icing  
MIL-T-27725 Coatings, Corrosion-Preventive, for  
Aircraft Integral Fuel Tanks

## STANDARDS

## MILITARY

MIL-STD-129 Marking for Shipment and Storage  
MIL-STD-794 Parts and Equipment, Procedures for  
Packaging and Packing of  
MIL-STD-831 Tests Reports, Preparation of

(Copies of specifications, standards, drawings and publications required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.1.2 Other documents and publications. The following other documents form a part of this specification to the extent specified herein.

## AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D2276 Fuels, Aviation Turbine, Particulate Contaminant In

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

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## 3. REQUIREMENTS

3.1 Qualification. The material furnished under this specification shall be a product which is qualified for listing on the applicable qualified products list at the time set for opening of bids.

3.1.1 Requalification. Before any change is made in the composition or fabrication process of the final product, the contractor or manufacturer shall contact the qualifying activity to determine if requalification is required.

3.2 Materials. The aluminum alloy foil used in producing the expanded metal mesh shall conform to the Aluminum Association, Incorporated 3003 H24 or 3010 H24. The Grade 1 foil shall be untreated. The Grade 2 foil shall be coated with a chromate conversion coating conforming to MIL-C-5541. The foil shall be slit longitudinally such that the resultant web, when expanded laterally forms a mesh of hexagonally shaped openings. The expanded foil shall be folded to form a batt having small contiguous apertures. The product supplied under this specification shall be of the same quality and manufacturing process as that used in the qualification samples. The end product shall be expanded mesh which is suitable for use in aircraft fuel tanks to suppress pressure build up and explosions due to ignition of vapor/air mixtures.

3.3 Physical properties and characteristics. The physical properties and characteristics of the suppression material shall be in accordance with Table I.

3.4 Combustion overpressure (Explosion Suppression). The combustion overpressure shall be as follows:

Type I: Maximum combustion pressure increase shall not exceed 20 psi when combustion volume ( $V_c$ ) = 5 Volume Percent:  
Initial Pressure ( $I_p$ ) = 3 psig.

Type II: Class A; Combustion pressure increase shall not exceed 20 psi when  $V_c$  = 5 Volume Percent and  $I_p$  = 3 psig.

Class B: Combustion pressure increase shall not exceed 15 psi when  $V_c$  = 10 Volume Percent and  $I_p$  = 3 psig.

Type III: Class A: Combustion pressure increase shall not exceed 18 psi when  $V_c$  = 10 Volume Percent and  $I_p$  = 3 psig.

Class B: Combustion pressure increase shall not exceed 15 psi when  $V_c$  = 10 Volume Percent and  $I_p$  = 3 psig.

3.5 Slosh testing. Slosh testing in accordance with 4.4.1.9 and 4.4.1.10 respectively, shall be conducted on tanks packed with the explosion suppression material. At the end of each test the batts of material shall be

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TABLE I. Physical properties and characteristics.

PROPERTY	REQUIREMENTS							Test
	Type I	Type II		Type III		Test		
		Class A	Class B	Class A	Class B			
Foil Thickness	1.5 mil	2 mil	2 mil	3 mil	3 mil			
Density Range, lb/ft <sup>3</sup> (kg/m <sup>3</sup> )	1.5 - 1.7 (24 - 27)	1.7 - 2.0 (24 - 32)	2.0 - 2.3 (32 - 37)	2.3 - 2.7 (37 - 43)	2.7 - 3.2 (43 - 51)		4.4.1.3	
Nominal Density, lb/ft <sup>3</sup> (kg/m <sup>3</sup> )	1.6 (26)	1.9 (30)	(2.1 (34)	2.5 (40)	3.0 (48)			
Cell Count, No./in.	3.5 ± 0.2	3.1 ± 0.2	3.5 ± 0.2	3.0 ± 0.1	3.4 ± 0.2			
Layer Count, No./in. (No./cm)	13.6 ± 0.5 (5.4 ± 0.2)	13.1 ± 0.4 (5.2 ± 0.16)	13.7 ± 0.4 (5.4 ± 0.16)	12.6 ± 0.5 (5.0 ± 0.2)	13.6 ± 0.5 (5.4 ± 0.2)			
Fuel Displacement, Vol. %	1.0 ± 0.2	1.0 ± 0.2	1.2 ± 0.2	1.4 ± 0.2	1.7 ± 0.2		4.4.1.4	
Fuel Retention, Vol. %	1.0 max	0.7 ± 0.1	0.9 ± 0.1	0.6 ± 0.2	0.8 ± 0.1		4.4.1.5	
Water Retention, Vol. %	1.4 max	0.8 ± 0.2	1.2 ± 0.2	1.0 ± 0.2	1.3 ± 0.2		4.4.1.6	
Entrained Solid Contamination, mg/cu.ft (mg/m <sup>3</sup> )	14.0 max (500)	14.0 max (500)	14.0 max (500)	14.0 max (500)	14.0 max (500)		4.4.1.7	

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carefully removed for inspection. The physical integrity of the batts shall be maintained and batts should not shrink more than 2 percent in any dimension. Total suppression material breakdown in any of the tests shall not exceed 0.3 percent by weight of the total material installed. Abrasion to tank coating and sealant materials shall be minimal and the effect not be detrimental to the normal operation of the fuel system. Any abrasion to the tank wall should not be significant enough to have an adverse influence on the fuel tanks performance.

### 3.6 Dimensions and tolerances.

3.6.1 Standard batt size. Unless otherwise specified, suppression material shall be produced in standard size batts of the size, 36 x 22 x 12 inches (91.4 x 55.8 x 30.5 cm).

3.6.2 Optional batt sizes. When specified, batt sizes shall be made with the following maximum dimensions:

Type I: 37 x 36 x 18 inches (94 x 91.4 x 45.7 cm)

Type II: Class A: 42 x 36 x 18 inches (106.7 x 91.4 x 45.7 cm)  
Class B: 38 x 36 x 18 inches (96.5 x 91.4 x 45.7 cm)

Type III: Class A: 44 x 36 x 18 inches (111.7 x 91.4 x 45.7 cm)  
Class B: 39 x 36 x 18 inches (99 x 91.4 x 45.7 cm)

3.6.3 Tolerances. Production tolerance limits on standard and optional batt sizes shall be as follows (See 6.3):

Length:	+1, -0 inches (+2.54, -0 cm)
Width:	+ 1/4 inches (+ 0.64 cm)
Thickness:	$\pm$ 1.8 inches ( $\pm$ 0.32 cm)

3.7 Identification of Product. The suppression material shall be sealed in a clean polyethylene bag as it comes off the production line. A labeled card shall be provided inside the bag which clearly identifies the manufacturer's part number, date of manufacture, production run number, batt number and size. When applicable, the government contract or order number shall be included. There shall be no color coding or marking on the batt surface.

3.8 Workmanship. The suppression material shall be fabricated in accordance with high-grade manufacturing practices covering this type of material. The material shall be suitable for its intended use and free of defects which may affect its performance. It shall be of a uniform appearance and free from tears.

## 4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for Inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance

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of all inspection requirements as specified herein. Except as otherwise specified in the contract, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.2 Classification of tests. The inspection and testing of the suppression material specified herein are classified as follows:

- |                              |         |
|------------------------------|---------|
| a. Qualification Tests       | See 4.4 |
| b. Quality Conformance Tests | See 4.5 |

4.3 Test conditions

4.3.1 Temperature and humidity. Unless otherwise specified herein all tests shall be conducted under conditions of  $73^{\circ} \pm 5^{\circ} \text{F}$  ( $22.7^{\circ} \pm 2.8^{\circ} \text{C}$ ) and  $50 \pm 5$  percent relative humidity. Prior to physical property testing, specimens shall be preconditioned in the test environment a minimum of 30 minutes.

4.3.2 Test fluids. Unless otherwise specified herein, the test fluids shall be of known properties and certified in accordance with the referenced military specification. The turbine fuels conforming to MIL-T-5624 may be obtained from the qualifying activity along with a certified test report defining, as a minimum, the specific gravity, distillation, and existent gum. This test report shall be included in the qualification test reports.

4.3.3 Specimen cutting. Unless otherwise specified, specimen cutting shall be by reciprocating blade, band saw cutting, or other suitable means.

4.4 Qualification testing. The test specimen shall be a batt which has been made along with the regular production batts. Three replicates shall be used for each test except foil thickness, density, and cell count. The material shall be representative of the mid range in density. If any value of the three test replicates deviates by more than 20 percent from the average value, two additional replicates shall be tested and the average of five value shall be reported.

4.4.1 Qualification tests. The qualification tests shall consist of foil thickness density, cell and layer count, fluid displacement, fluid retention, water retention, entrained solid contamination, combustion overpressure, and slosh/vibration.

4.4.1.1 Disposition of test specimens. When requested all test specimens used in the qualification tests shall be made available to the qualifying activity as well as the following: a standard size batt from the qualification test run; 5 inch cube retention samples from each type and class; a specimen of a size suitable for the explosion suppression test.

4.4.1.2 Examination of product. Each finished batt of material shall be visually inspected for consistency of aperture structure, obvious voids, local concentrations, surface imperfections and for dimensional tolerances specified in 3.6.3 prior to final packaging.

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4.4.1.3 Density test. One test specimen shall be tested for all but qualification as follows; For qualification, three specimens shall be tested. The specimen shall be a 12 X 12 X 12 inch (30.5 X 30.5 X 30.5 cm) cube cut from a standard size batt. It shall be weighed and the result reported to the nearest 0.1 pound per cubic foot (1.6 kg/m<sup>3</sup>).

4.4.1.4 Fuel displacement tests. Three samples per test shall be run using grade JP-5 turbine fuel conforming to MIL-T-5624, and the average reported as the fuel displacement. The test shall be conducted at standard conditions using a standard 1,000 milliliters (ml) capacity cylinder having 5 to 10 ml graduations. Each specimen shall be cut into a cylindrical shape having a diameter equal to that of the graduated cylinder and a length sufficient to fill the test cylinder to the 900 ml mark. Fuel shall be added to the 900 ml mark in the graduated cylinder and the specimen slowly added until it is completely immersed. The new fluid level shall be noted and the increase in milliliters shall be recorded. The size of each specimen shall be measured and recorded. The displacement shall be calculated as follows:

$$\text{Percent Volume Displacement} = \frac{\text{Milliliters increase}}{\text{Original fluid volume}} \times 100$$

4.4.1.4.1 Calculated fuel displacement. The theoretical volume displacement of the material as calculated from the following formula and based on the material density specified in 4.4.1.3 shall be reported:

$$\text{Percent Displacement (Volume)} = \frac{\text{Material density}}{\text{Density of solid raw material}} \times 100$$

4.4.1.5 Fuel retention test. Fuel retention shall be determined on a 6 X 6 X 6 inch (15.2 X 15.2 X 15.2 cm) specimen using grade JP-5 turbine fuel conforming to MIL-T-5624 having a specific gravity of 0.788 to 0.845. Two specimens shall be cut from the center of the test section directly adjacent to each other. These shall be used for the fuel and water retention tests. One specimen shall be tested for fuel retention in accordance with the following procedure, and all applicable data shall be recorded:

a. The specimen shall be preconditioned at a temperature of  $74^{\circ} \pm 3^{\circ}\text{F}$  ( $23.3^{\circ} \pm 1.7^{\circ}\text{C}$ ) for a minimum of 30 minutes, weighed to the nearest 0.1 gram, and the dimensions measured to the nearest 0.1 inch (0.25 cm). The grade JP-5 test fluid shall be prefiltered through a 0.8 micron filter (Millipore Filter Corporation, or equal) and then adequately preconditioned at the test temperature. Just prior to use, the fluid shall be tested for specific gravity (density) and temperature.

b. The retention test apparatus shall be sized to approximately 7 X 7 X 10 inches (17.8 X 17.8 X 25.4 cm) and shall have a means of draining the fuel from the bottom at the rate of  $500 \pm 50$  cc/minute. The test fluid shall be charged into the container to a level which corresponds to approximately 0.5 inch (1.27 cm) above the top of the specimen.

c. Next, the specimen shall be slowly placed into the container such that the specimen is oriented with the layers horizontal and supported off the bottom of the container by two glass rods and spaced 0.5 inch (1.27 cm) from all sides of the container. Fuel shall then be drained at the prescribed rate until flow ceases and the specimen then allowed to drain in this position for an additional 2 minutes

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d. The specimen shall then be carefully removed from the container and weighed to the nearest 0.1 gram. Using the specimen weights before and after fluid wetting in grams, specimen volume in cubic centimeters, and fuel density in grams per cubic centimeter, the percent volume retention shall be calculated as follows:

$$\text{Percent Retention} = \frac{(\text{Wet Specimen Weight} - \text{Dry Specimen Weight})}{\text{Specimen Volume} \times \text{Density of Fuel}} \times 100$$

e. All values, including test fluid temperatures, shall be reported.

4.4.1.6 Water retention test. The other test specimen shall be used to determine the volume percent water retention using the same procedure. The test fluid shall be distilled water which has been tested for temperature and density just prior to use. CAUTION: Do not run more than two tests per batch of water.

4.4.1.7 Entrained solid contamination tests. Solid contamination tests shall be conducted on a cylindrical specimen of layered material having dimensions of 8-1/4 inches (20.96 cm) in diameter and 8 inches (20.95 cm) in height. The 8 inch (20.95 cm) dimension shall be cut in the direction of layers (batt-height). For material having more than 8 inches (20.95 cm) in batt height, the specimen shall be taken from the lower portion of the test section. Testing shall be conducted using a U.S. Testing Company model 6523 dry cleaning machine having a tumbler rotation speed of 45 rpm. The specimen shall be positioned in the center of the tumbler. The test cycle shall be 5 minutes using a 4-liter charge of Type I fluid conforming to TT-S-735 which has been prefiltered through a 0.8 micron Millipore Filter Corporation filter, or equal. Upon completion of the test cycle, the specimen shall be positioned slightly above the fluid level and allowed to drain for 5 minutes prior to removal. The test fluid shall then be tested for level of solid contamination in accordance with Appendix A2 (Laboratory Filtration) of ASTM D2276-73. Following filtration of the test fluid and just prior to removal of the filter pad from the apparatus, the filter and contamination shall be neutralized of static charge with a Nuclear Products Company model 2U500 air deionizer, or equal (see 6.5). This step shall preclude the loss of particles from the filter pad during transfer to the drying oven. Each filter used shall be dried at 194°F (90°C) for a minimum of 15 minutes and then cooled for a minimum of 15 minutes. A minimum of one control filter shall be run for each set of samples. Test results shall be reported in milligrams per cubic foot of material.

4.4.1.8 Explosion suppression (pressure increase or combustion overpressure). Explosion suppression (pressure increase) characteristics of the suppression material shall be defined using a small scale flame tube type apparatus having a minimum total volume of 5 cubic feet (0.14m<sup>3</sup>) and a 100 square inch (0.06m<sup>2</sup>) cross-sectional area. The following parameters shall be satisfied in all the testing:

- a. Stoichiometric propane/air mixture (4.5 to 5.1 percent propane) verified by bomb sampling.
- b. Spark ignition source having a minimum of 0.25 millijoules energy.
- c. Dry suppression material which is in the lower half of the density range.

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d. Instrumentation shall measure and include: pressure rise; combustion temperature indication; and visual, photographic, or photocell indication of flame propagation.

e. Combustion relief area shall be 80 percent of cross-sectional area or greater. The material used for the testing shall be taken from given batts which have been sufficiently tested to establish density and expansion characteristics. The material shall always be oriented in the test apparatus to permit flame penetration normal to the layers of material.

f. The material shall always be sized to fit snugly when installed and restraints used to avoid material movement during testing. The combustible mixture on each test shall be verified by bomb sampling and shall meet the following minimum criteria for pressure rise:

$P_{(min)} = (8XP_0) 0.7$ , where  $P_0$  = initial pressure of system in psia.  
The following definitions shall apply (see figure 1.):

$V_c$  = Combustion (Ignition) volume

$V_s$  = Suppression Material volume

$V_t$  = Total volume of apparatus =  $V_c + V_s$

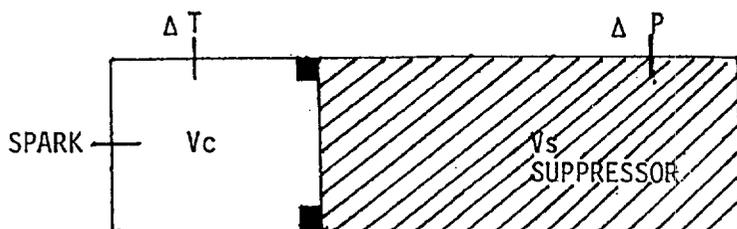


Figure 1. Explosion Suppression Apparatus.

The following testing shall be conducted, and all data and results shall be reported for each test condition (see figure 1 for typical explosion suppression apparatus):

Single void ignitions shall be conducted at 0 and 3 psig initial pressure with percent combustion volumes (percent  $V_c$ ) of:

0, 10, 20, 30, and 40 volume percent.

A minimum of two tests shall be conducted for a given condition and all data such as bomb and system pressure rise, test temperature, extent and location of suppression material damage, and any other related information shall be submitted to the qualifying activity. A plot of pressure rise versus (percent) combustion volume shall be submitted for each initial pressure condition. Repeat tests may be conducted on the material provided the damaged portions are replaced after each test. All tests shall be conducted at standard temperatures and conditions.

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4.4.1.9 Metal tank slosh test. A tank slosh test shall be performed in a metal fuel tank conforming to MIL-T-6396, Type I. The tank, complete with all internal components and plumbing, shall be packed with the suppression material of the type under examination and typical of future production with regard to physical properties and method of installation. Material dimensions and weights shall be recorded and the installation documented by photographic evidence. The tank shall be coated internally with test patches of topcoating and sealant in accordance with MIL-T-27725 and MIL-S-8802, Classes A and B respectively. The test patches shall be on the bottom of the tank and not be smaller than 6 inches (15.2 cm) wide and 2 square feet (0.18m<sup>2</sup>) in area for the topcoating and 6 X 6 inches (15.2 X 15.2 cm) for each class of sealant. The test patches shall be in direct contact with the suppression material. The test tank shall be mounted in a support jig in a manner to simulate pitching in the actual aircraft. The support jig shall be rigidly mounted on a rocker assembly of a design acceptable to the qualifying activity.

4.4.1.9.1 Test conditions. The tank shall be two-thirds filled with the test fluid defined in 4.3.2. The test shall be conducted with the test fluid at room temperature and under ambient pressure conditions. The slosh rocking angle shall be 30 degrees total, approximately 15 degrees on either side of the horizontal position. The test duration and procedure shall be:

- a. slosh for 25 hours at 16 to 20 slosh cpm, or
- b. slosh for 40 hours at 10 to 16 slosh cpm.

4.4.1.9.2 Test results. On completion of the test, the suppression material shall be removed and inspected for damage, shrinkage and breakdown. The interior surface of the tank and coating sealant patches shall be inspected for evidence of abrasion and damage. Observations shall be noted and the condition of test articles documented by photography. All fragments of material shall be collected and weighed. Analysis shall be made, if necessary, to distinguish suppression material fragments from sealant/coating/tank material. Material dimensions shall be recorded, and all of the data shall be included in the qualification test report.

4.4.1.10 Bladder tank slosh vibration test. A slosh test shall be conducted on a bladder tank conforming to MIL-T-6396, Type II, Class A. The tank shall be fully packed with the suppression material of the type under examination and typical of future production with regard to physical properties and method of installation. Material dimensions and weights shall be recorded and the installation documented by photographic evidence. Testing shall be conducted per MIL-T-6396, Section 4.6.6.4 except:

- a. all lines and components external to the tank shall be excluded.
- b. the fuel temperature and operating pressure shall be ambient.

At the conclusion of the test, the material shall be removed and inspected for damage, shrinkage, and breakdown. The interior surface of the tank shall be inspected for evidence of abrasion and damage. Observations shall be noted and the condition of test articles documented by photography. Any fragments of material shall be collected and weighed. Analysis shall be made, if necessary, to distinguish suppression material fragments from tank material. Material dimensions shall be recorded, and all of the data shall be included in the qualification test report.

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4.4.2 Inspection of preparation for delivery. Inspection of the preservation, packaging, packing, and marking for shipment shall be in accordance with the requirements of section 5.

4.4.3 Qualification test report, disposition of test specimens, and data for the qualifying activity. The following shall be furnished to the qualifying activity as a qualification package:

a. Test report. A qualification test report shall be prepared in accordance with MIL-STD-831 and shall include the following:

(1) A tabulation of all qualification test data including production test data on the qualification material run. All values obtained shall be included as well as sample calculations.

(2) Details of any failures.

b. Test specimens. When requested, all test specimens used in the qualification tests shall be made available to the qualifying activity, as well as the following:

(1) A standard size batt (see 3.6.1) from the qualification test run.

(2) Retention samples (6 X 6 X 6 inches) (15.2 X 15.2 X 15.2 cm) near the low, middle, and top of the density range for each type and class.

(3) Sufficient material from the qualification test run cut to size for the explosion suppression tests specified in 4.4.1.8 (if these tests are to be conducted by the qualifying activity).

4.5 Quality conformance tests. Quality conformance tests shall consist of visual examination, density, entrained solid contamination and inspection for preparation for delivery. Quality conformance tests shall be conducted on each run of material produced (see 6.3) except that the entrained solids contamination test (4.4.1.7) shall be conducted on each lot (see 6.3). The minimum testing frequency shall be every one hundred standard size batts, or an equivalent volume thereof when producing various sizes. The following visual examinations and tests shall be conducted:

a. Prior to slitting the raw material, conformance to the required alloy shall be determined as well as the thickness and web width.

b. The raw material shall be visually inspected to insure that perforations and damaged edges do not exist prior to slitting.

c. At the start of slitting, a cut off portion of the material shall be taken and manually expanded to ascertain that the rotary knives are adequately and cleanly penetrating the foil.

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d. During the expanding operation, a visual check shall be made to determine that all apertures are open and rips and tears are absent.

e. During the fan folding operation the creases shall be kept aligned and batt dimensions shall be maintained within the specified tolerances.

5. PACKAGING

5.1 Preservation - Packaging. The suppression material (batts), shall be preserved and packaged in accordance with MIL-P-116, method III. The finished material (batts), shall be enclosed and sealed in suitable quantities in a 4-mil polyethylene (plastic) wrap/bag conforming to L-P-378, Type I, Class I, Grade B. If tape sealing is used it shall be Permacel Masking Tape 785, or equal.

5.2 Packing. Packing shall be level A, B, or C as specified (see 6.2).

5.2.1 Level A. Batts, preserved and packaged as specified in 5.1, shall be packed in a weather-resistant exterior container selected from and in accordance with MIL-STD-794.

5.2.2 Level B. Batts, preserved and packaged as specified in 5.1, shall be packed as specified in 5.2.1 except, containers shall be of the domestic type. If containers conforming to PPP-B-636 are used, the total size limitation specified may be waived.

5.2.3 Level C. Batts, preserved and packaged as specified in 5.1 shall be packed in a manner to insure acceptance by common carrier and afford protection against physical and mechanical damage during shipment from the supply source to the first receiving activity for immediate use. This level shall comply with uniform freight classification rules and regulations or other carrier regulations as applicable to the mode of transportation.

5.3 Marking. Marking shall be in accordance with MIL-STD-129. The nomenclature shall be as follows:

BAFFLE MATERIAL, AIRCRAFT FUEL TANK

5.3.1 Additional marking. In addition to the nomenclature, each unit package or container shall contain the following information:

Specification No.  
Suppression Material: Grade, Type, Class  
Manufacturer's Part No.  
Date of Manufacture

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6. NOTES

6.1 Intended use. The suppression material covered by this specification is intended for use in aircraft fuel tanks and dry bay areas (cavities), using hydrocarbon fuels at all service temperatures, for explosion suppression.

6.1.1 Storage life. The storage life of the suppression material covered by this specification is not limited. It should be kept in its sealed plastic bag to keep it free of dirt or other contaminants. The material should be inspected for evidence of damage or surface deterioration prior to use.

6.2 Ordering data.

6.2.1 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of this specification.
- b. Grade, Type, and class of explosion suppression material required (see 1.2).
- c. Level of packing required (see 5.2).

6.3 Definitions. For the purpose of this specification, the following definitions will apply:

- a. Run of Material: A run of material is defined as any continuous batch of product or a machine run produced over any continuous time period the maximum run time being a 12 - hour period. When production is interrupted for 2 or more hours, this will constitute a new run.
- b. Lot: A lot of material is defined as 15 machine runs of a product.
- c. Length: The length dimension lies in the direction of expansion of the web.
- d. Width: The width dimension lies in the direction of machine travel of the web.
- e. Thickness: The thickness dimension lies in the direction of the of the batt, i.e. the layer dimension.

6.4 Products requiring qualification. With respect to products requiring qualification, awards will be made only for products which are, at the time set for opening of bids, qualified for inclusion in the applicable Qualified Products List whether or not such products have actually been so listed by that date. The attention of the contractors is called to these

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requirements, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or orders that they may be eligible to be awarded contracts or orders for the products covered by this specification. The activity responsible for the Qualified Products List is the Air Force Wright Aeronautical Laboratory, Attn: AFWAL/MLSE, Wright-Patterson Air Force Base, Ohio, 45433 and information pertaining to qualification of products may be obtained from that activity.

6.5 Air Deionizer

An available source for the model 2U500 air deionizer specified in 4.4.1.6 is the Nuclear Products Company, 2519 N. Merced Avenue, South El Monte, California, 91733.

Custodian  
Air Force - 11

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(Project No. 1560-F120)

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